

Application No. 09/836,778

Filed: April 17, 2001

TC Art Unit: 2644

Confirmation No.: 6862

AMENDMENT TO THE CLAIMS

1. (currently amended) A parametric audio amplifier system, comprising:

at least one amplifier assembly including at least one amplifier including an input and an output, and a damping resistance having first and second terminals, the amplifier being configured to receive an ultrasonic signal modulated with an audio signal at its input, and to amplify the modulated ultrasonic signal, and provide the amplified ultrasonic signal to its output the damping resistance being configured to receive the amplified ultrasonic signal at its first terminal, and to provide the ultrasonic signal at its second terminal; and

at least one acoustic transducer assembly including at least one input, at least one output, a bias generator, at least one acoustic transducer, and at least one component interfacing the amplifier assembly and the acoustic transducer, the input of the acoustic transducer assembly being coupled to the output of the amplifier, the interface component being configured to receive the amplified ultrasonic signal provided at the second terminal of the damping resistance, and to provide a drive signal corresponding to the ultrasonic signal to the acoustic transducer, the bias generator being configured to generate a bias level, and to

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provide the bias level to the acoustic transducer, and the acoustic transducer being configured to receive the drive signal and the bias level, to generate a sonic beam corresponding to the drive signal and the bias level, and to project the sonic beam through the air to regenerate the audio signal.

2. (currently amended) The parametric audio amplifier system of claim 1 further including a connection interconnecting the amplifier assembly and the acoustic transducer assembly and configured to carry at least the ~~amplified~~-ultrasonic signal from the amplifier assembly to the acoustic transducer assembly.

3. (currently amended) The parametric audio amplifier system of claim 1 wherein the interface component comprises a step-up transformer including a primary winding configured to receive the ~~amplified~~-ultrasonic signal and a secondary winding configured to provide the drive signal to the acoustic transducer.

4. (original) The parametric audio amplifier system of claim 3 wherein an inductance of the secondary winding is resonant with a capacitance of the acoustic transducer at an ultrasonic frequency.

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5. (currently amended) The parametric audio amplifier system of claim 1 wherein the interface component comprises a resonant inductor configured to receive the ~~amplified~~ ultrasonic signal and to provide the drive signal to the acoustic transducer.

6. (original) The parametric audio amplifier system of claim 5 wherein an inductance of the resonant inductor is resonant with a capacitance of the acoustic transducer at an ultrasonic frequency.

7. (original) The parametric audio amplifier system of claim 1 wherein the bias generator is configured to provide a DC bias voltage level to the acoustic transducer.

8. (original) The parametric audio amplifier system of claim 1 wherein the bias generator is configured to provide a low frequency AC bias voltage level to the acoustic transducer.

9. (currently amended) The parametric audio amplifier system of claim 1 wherein the ultrasonic drive signal comprises a source of energy for the bias generator.

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10. (currently amended) The parametric audio amplifier system of claim 2 wherein the ~~amplifier is disposed in an amplifier assembly, the amplifier assembly further including~~ includes at least one voltage source configured to generate a voltage level.

11. (original) The parametric audio amplifier system of claim 10 wherein the voltage source comprises a DC voltage source configured to generate the voltage level having a level no greater than 50 volts.

12. (original) The parametric audio amplifier system of claim 10 wherein the voltage source comprises an AC voltage source configured to generate the voltage level having a level no greater than 50 volts.

13. (original) The parametric audio amplifier system of claim 10 wherein the connection is further configured to carry the voltage level from the amplifier assembly to the acoustic transducer assembly, and the bias generator is further configured to receive the voltage level as input.

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14. (original) The parametric audio amplifier system of claim 10 wherein an output of the amplifier and an output of the voltage source are coupled to a node disposed in the amplifier assembly, the node being configured to provide the amplified ultrasonic signal having the voltage level superimposed thereon.

15. (currently amended) The parametric audio amplifier system of claim 14 wherein the connection is further configured to carry the ~~amplified~~-ultrasonic signal having the voltage level superimposed thereon from the amplifier assembly to the acoustic transducer assembly.

16. (currently amended) The parametric audio amplifier system of claim 15 wherein the acoustic transducer assembly further includes a capacitor coupled between the acoustic transducer and the connection to the amplifier assembly, the capacitor being configured to block the voltage level from the acoustic transducer and to provide the ~~amplified~~-ultrasonic signal to the acoustic transducer.

17. (original) The parametric audio amplifier system of claim 15 wherein the acoustic transducer assembly further includes a

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capacitor coupled between the acoustic transducer and the connection to the amplifier assembly, the capacitor being configured to block the bias level from the connection to the amplifier assembly.

18. (currently amended) The parametric audio amplifier system of claim 15 wherein the acoustic transducer assembly further includes an inductor coupled between the connection to the amplifier assembly and the bias generator, the inductor being configured to block the ~~amplified~~ ultrasonic signal from the bias generator and to provide the voltage level to the bias generator.

19. (currently amended) A method of operating a parametric audio amplifier system, comprising the steps of:

receiving an ultrasonic signal modulated with an audio signal by an amplifier;

amplifying the modulated ultrasonic signal by the amplifier;

receiving the amplified ultrasonic signal at a first terminal of a damping resistance;

providing the ultrasonic signal at a second terminal of the damping resistance;

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providing the ~~amplified~~ ultrasonic signal to an acoustic transducer assembly by a connection disposed between interconnecting the amplifier the second terminal of the damping resistance and the acoustic transducer assembly;

receiving the ~~amplified~~ ultrasonic signal by at least one interface component included in the acoustic transducer assembly;

providing a drive signal corresponding to the ~~amplified~~ ultrasonic signal to at least one acoustic transducer included in the acoustic transducer assembly by the interface component;

providing a bias level to the acoustic transducer by a bias generator included in the acoustic transducer assembly;

receiving the drive signal and the bias level by the acoustic transducer; and

generating a sonic beam corresponding to the drive signal and the bias level by the acoustic transducer.

20. (currently amended) The method of claim 19 wherein the amplifier ~~is~~ and the damping resistance are disposed in an amplifier assembly, and further including the step of generating a voltage level by a voltage source included in the amplifier assembly.

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21. (original) The method of claim 20 wherein the first providing step further includes providing the voltage level to the acoustic transducer assembly by the connection for use by the bias generator included in the acoustic transducer assembly.